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DISTINCTIVE CHARACTERS OF *ODONTASPIS LITTORALIS*.

BY JOSEPH LEIDY, M. D.

In the collection of the Academy is a shark, $8\frac{1}{2}$ feet long, which was caught some years ago at Beesley's Point, New Jersey. I was present when the shark was caught, and helped to land it and prepare the skin and jaws for preservation. Attached to the shark were a number of lernean parasites, subsequently to be described. Recently, wishing to know the exact name of the shark, I determined it to be the *Odontaspis littoralis*, but found its distinctive characters rather vaguely indicated by authorities. The shark is not uncommon on our coast; and is commonly called the "man-eater." In color it is iron grey above, paler at the sides and dusky white beneath. In the form, relative position of the fins, and other external characters, it clearly accords with the figure 1, of plate 36, of Storer's Fishes of Massachusetts, referred to *Carcharias griseus* of Ayres. In the figure the branchial clefts are represented as being placed well in advance of the pectoral fin, as in our specimen, and not close to the latter as indicated by Müller and Henle in the figure of *Odontaspis taurus*.

Dr. Abbott (Proc. 1861, 400), in describing our specimen named it *Odontaspis americanus* and gives the dental characters as follows:—"Teeth with a single toothlet on either side, but occasionally one wanting. Upper and lower first tooth smaller than the adjoining teeth; then follow above two very long teeth; then another pair of somewhat smaller teeth; then two somewhat increase in length; then the remainder gradually decrease. In the lower jaw the teeth gradually decrease from the first pair."

Prof. Gill, in a Synopsis of the Eastern American Sharks, (Proc. 1864, 260,) names the same species *Eugomphodus littoralis*, and gives as its synonyms *Squalus americanus*, *littoralis* and *macrodon* of Mitchell; *Carcharias littoralis*, Dekay; *C. griseus*, Ayres; *Eugomphodus griseus*, Gill; and *Odontaspis americanus*, Abbott. He says that *Eugomphodus* is distinguished from *Carcharias* (Raf.), *Triglochis* or *Odontaspis* "by the simple first and fourth teeth of the upper jaw, as well as the first of the lower."

Günther, in the Catalogue of Fishes in the British Museum, names the same shark *Odontaspis americanus*, and includes the other names above given as synonymous, to which is added the *Odontaspis taurus*

of Müller and Henle. He gives as characters of the dentition, "upper first tooth not smaller than the second; one or two small teeth between the upper third and fourth long teeth; large teeth with a single small cusp on each side. As localities, he gives the Atlantic and South Pacific.

Jordan and Gilbert, in the Synopsis of the Fishes of North America, for *Odontaspis littoralis*, also include all the other names mentioned as synonymous except the *O. taurus*. As distinctive characters they adopt the diagnosis of *Eugomphodus* of Gill—"first and fourth teeth of the upper jaw and first of the lower simple, without basal cusps." Müller and Henle gives as characters of *Odontaspis taurus* "upper first tooth smaller; then follow two very long teeth; then one or two smaller ones; then again large ones from which they gradually decrease. The lower teeth gradually decrease from the second."

Besides the specimen of *Odontaspis littoralis* from Beesley's Point, we have at command half a dozen sets of jaws of the same species. Of these one is from Nantucket, and another from Townsend's Inlet, N. J.; the others have no locality marked. In all the essential characters of the dentition are alike; but they do not accord with those which have been given as distinctive of the species. The number of teeth varies according as there are a few or more of the rudimentary ones at the ends of the series, but this is a difference of no diagnostic value as a like variation occurs on the two sides of the same jaw. In all our specimens, without exception, the teeth are provided with a pair of denticles; none being simple as intimated by Gill, and by Gilbert and Jordan, in the diagnosis of *Eugomphodus*. The anterior teeth in general are long, narrow, and sigmoid, and their denticles are curved. The more posterior, lateral and larger teeth are shorter than the former and proportionately wider, and have also shorter and wider denticles. In different specimens they exhibit a variable disposition to the production of a second smaller denticle. In five of the sets of jaws in which the teeth are well displayed throughout, we find the following range of numbers:

19—17,	19—22,	20—18,	22—23,	24—24.
18—18	18—17	18—14	19—19	22—24

The distinctive dental characters are as follows:—In the upper jaw, three large teeth, of which the first and third are nearly equal and the second is slightly larger; fourth tooth very small, about one third the size of the former; then follows a considerable hiatus; fifth to the seventh teeth nearly equal and smaller than the third

tooth; the remaining teeth successively decreasing. In the under jaw the first tooth is small, about one-half the size of the next, which is the largest; and then the others successively decrease.

Müller and Henle, Abbott, and Günther intimate that in *Odontaspis*, in the upper dental series, there are one or two small teeth after the third large tooth. In none of our specimens are there two small teeth in this position, but after the single small tooth there is a hiatus, in different jaws ranging from a third to more than half an inch, which presents no trace of a tooth. This hiatus is unusual in the dental series of sharks; and it perhaps gave rise to the inference and consequent assertion that it is normally occupied by a second small tooth. In the figure of the dentition of *Odontaspis taurus* as given by Müller and Henle, notwithstanding their statement, a single small tooth appears after the upper third large tooth, in accordance with what we observe in *O. littoralis*. In *O. taurus*, the first tooth in both jaws is represented as being nearly equal and about a third less than the adjoining teeth; and the upper third and lower second teeth appear as the largest of the series.